

## EENS Job Risk Assessment

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<b>Name(s) of Risk Team Members:</b> P. Carr; J. Peters; J. Boccio; L. Bowerman, B. Dong, D. Elling; D. Chidambaram; N. Contos; J. Madaia; W. Brown	<b>Point Value → Parameter ↓</b>	1	2	3	4	5
<b>Title:</b> <i>Work with hazardous chemicals in laboratories</i> <b>JRA #:</b> EENS-JRA-008 <b>Rev. #:</b> 0 <b>Date:</b> 12/6/05	<b>Frequency (B)</b>	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift
<b>Job Description:</b> Handling chemicals; may include any of the following hazards: Carcinogens, Highly Acute Toxin, Reproductive Toxins, Corrosives, Strong Oxidizers, Highly Reactive Materials, Perchlorates, Oils, Explosives, Peroxide Forming, Pyrophoric Materials, PCBs, Pesticides/Herbicides, Asbestos, & Controlled Substances	<b>Severity (C)</b>	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability
Training Procedures List (Optional): <i>Laboratory Standard</i>	<b>Likelihood (D)</b>	Very Unlikely	Unlikely	Possible	Probable	Multiple
<b>Approved by:</b> Date: 8/31/06 Patrick Sullivan		<b>Reason for Revision (if applicable):</b>			<b>Comments:</b>	
<b>Stressors (if applicable, please list all)</b> (1) Environmental Temperature; (2) Time						

Job Step/Task	Hazard	Control(s)	Before Additional Controls						Control(s) Added to Reduce Risk	After Additional Controls						% Risk Reduction
			Stressor	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD		Stressors	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	
Storing containers	Fire; explosion; spill; chemical reactions; exposure via inhalation	Guidance in Working with Chemicals Subject Area; CMS; Work Planning & Control (ESR); Training; PPE; segregation of hazard types; flammable & acid cabinets; area monitoring; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; Tier I inspections; container labeling; area posting; shelf-life monitoring; containers specific for the hazard and operation; temperature control, condition of container	Y <sup>1</sup>	1	4	2	3	24								
Moving containers within the lab	spillage via tripping/dropping; explosion; exposure; reaction	Guidance in Working with Chemicals Subject Area; CMS; Work Planning & Control (ESR); Training; PPE; area monitoring; personnel monitoring; secondary containment; spill response; Tier I inspections; container labeling; containers specific for the hazard and operation; condition of container	Y <sup>2</sup>	1	5	2	3	30								

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			Stressor	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD		Stressors	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	
Measuring chemicals- pipeting; weighing; filling sample cells, etc.	spillage; exposure to vapors, mists, dusts, liquids	Guidance in Working with Chemicals Subject Area; CMS, Work Planning & Control (ESR); Training; PPE; drop pads; personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; Tier I inspections; container labeling; area posting; containers specific for the hazard and operation	N	1	4	2	2	16								
Mixing, reacting; & synthesizing hazardous substances	uncontrolled reactions; exothermic reaction; explosions; exposure to vapors, mists, dusts; creation of unknown hazards; spills	Guidance in Working with Chemicals Subject Area; CMS, Work Planning & Control (ESR); Training; PPE; area monitoring; personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; container labeling; area posting; reactions vessels specific for the hazard; environmental controls	Y <sup>2</sup>	1	4	3	3	36								
Distilling & rotovap of hazardous substances	uncontrolled reactions, exothermic reaction, exposure to vapors, mists, dusts; over-pressurization; vacuum failure	Guidance in Working with Chemicals Subject Area; CMS, Work Planning & Control (ESR); Training; PPE; area monitoring; personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; Tier I inspections; container labeling; area posting; reactions vessels specific for the hazard; equipment inspection; fume hood sash lowered to create barrier when possible	N	1	2	2	2	8								
Using controlled substances	exposure to vapors, mists, dusts, liquids	SBMS <i>Controlled Substances</i> plus all controls of hazardous chemicals as appropriate; Training	N	1	1	2	2	4								
Analysis by instrumentation such as HPLC, GC, ICP, AA, MS, electrodes, thermometer	exposure to vapors, mists, dusts, liquids; over-pressurization; spill; puncture from syringe	Guidance in Working with Chemicals Subject Area; CMS, Work Planning & Control (ESR); Training; PPE; area monitoring; Personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; container labeling; area posting; containers specific for the hazard and operation; equipment specific documentation as appropriate	Y <sup>2</sup>	1	4	1	2	8								
Handling, storing, testing, and distilling peroxide forming compounds	rupture of container; exposure to vapors; liquids; explosion; spillage via tripping/dropping	CMS, Work Planning & Control (ESR), Training; PPE; periodic testing and labeling as per SBMS <i>WWC</i> ; area monitoring; personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; Tier I inspections; container labeling; shelf-life monitoring; containers specific for the hazard and operation	Y <sup>2</sup>	1	2	4	3	24								

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			Before Additional Controls						After Additional Controls							
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Handling, storing, testing <i>toxic metals</i>	exposure to dusts; spills; fire	Guidance in Working with Chemicals Subject Area; Work Planning & Control (ESR); Training CMS; PPE; area monitoring; personnel monitoring; fume hood/ventilation; secondary containment; postings; spill response; Tier I inspections; container labeling; containers specific for the hazard;	Y <sup>2</sup>	1	3	4	3	36								
Handling, storing, testing <i>corrosives &amp; strong oxidizers</i>	burns; spills; exposure; reactions	Guidance in Working with Chemicals Subject Area; Work Planning & Control (ESR); Training; CMS; PPE; separation of non-compatibles; container labeling; spill response; condition of container; use of small volumes; fume hood/ventilation; area postings; Tier I inspections; containers specific for the hazard; acid cabinet	Y <sup>2</sup>	1	4	3	3	36								
Handling, storing, testing <i>flammable/ combustible materials</i>	fire; spills; exposures; reactions; container failure	Guidance in Working with Chemicals Subject Area; Work Planning & Control (ESR); Training; CMS; PPE; separation of non-compatibles; container labeling; spill response; condition of container; use of small volumes; fume hood/ventilation; area postings; Tier I inspections; containers specific for the hazard; flammables cabinet; environmental controls	Y <sup>2</sup>	1	4	3	3	36								
Handling, storing, testing <i>pyrophoric compounds</i>	explosion; exposure to vapors, dust, mists, fumes; rupture of container; fire; spillage via tripping/dropping	Guidance in Working with Chemicals Subject Area; CMS, Work Planning & Control (ESR); Training; PPE; area monitoring; personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; Tier I inspections; container labeling; shelf-life monitoring; containers specific for the hazard and operation; Class D fire extinguisher; environmental controls; container condition	N	1	2	3	3	18								
Handling, storing, testing <i>sensitizers; acute toxins; carcinogens; &amp; reproductive toxins</i>	exposure to vapors, dust, mists, fumes, liquids; fire; spillage via tripping/dropping; explosions	Guidance in Working with Chemicals Subject Area; CMS, Work Planning & Control (ESR), Training; PPE; area monitoring; personnel monitoring; use of small volumes; fume hood/ventilation; secondary containment; spill response; use of safer substitutes; Tier I inspections; container labeling; area posting; containers specific for the hazard and operation; condition of container; environmental controls	Y <sup>2</sup>	1	3	4	3	36								

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			Stressor	# of People A	Frequency B	Severity C	Likelihood D		Stressors	# of People A	Frequency B	Severity C	Likelihood D	
Transporting of chemicals to other locations within a building	spillage via tripping/dropping; exposure to vapors, mists, dusts; fire; explosion; container failure	Work Planning & Control (ESR); Training; PPE; secondary containment; spill response; container labeling; containers specific for the hazard and operation; condition of container & cart; segregation; ensure container stability	Y <sup>2</sup>	1	4	3	3	36						
Transporting of chemicals onsite or offsite	spillage via tripping/dropping; exposure to vapors, mists, dusts; fire; explosion; container failure	See EENS-JRA-025	-	-	-	-	-	-						

*Risk:	0 to 20	21 to 40	41-60	61 to 80	81 or greater
	Negligible	Acceptable	Moderate	Substantial	Intolerable